



# Affordable, Clean Energy

World leading technology in reducing energy costs and carbon emissions



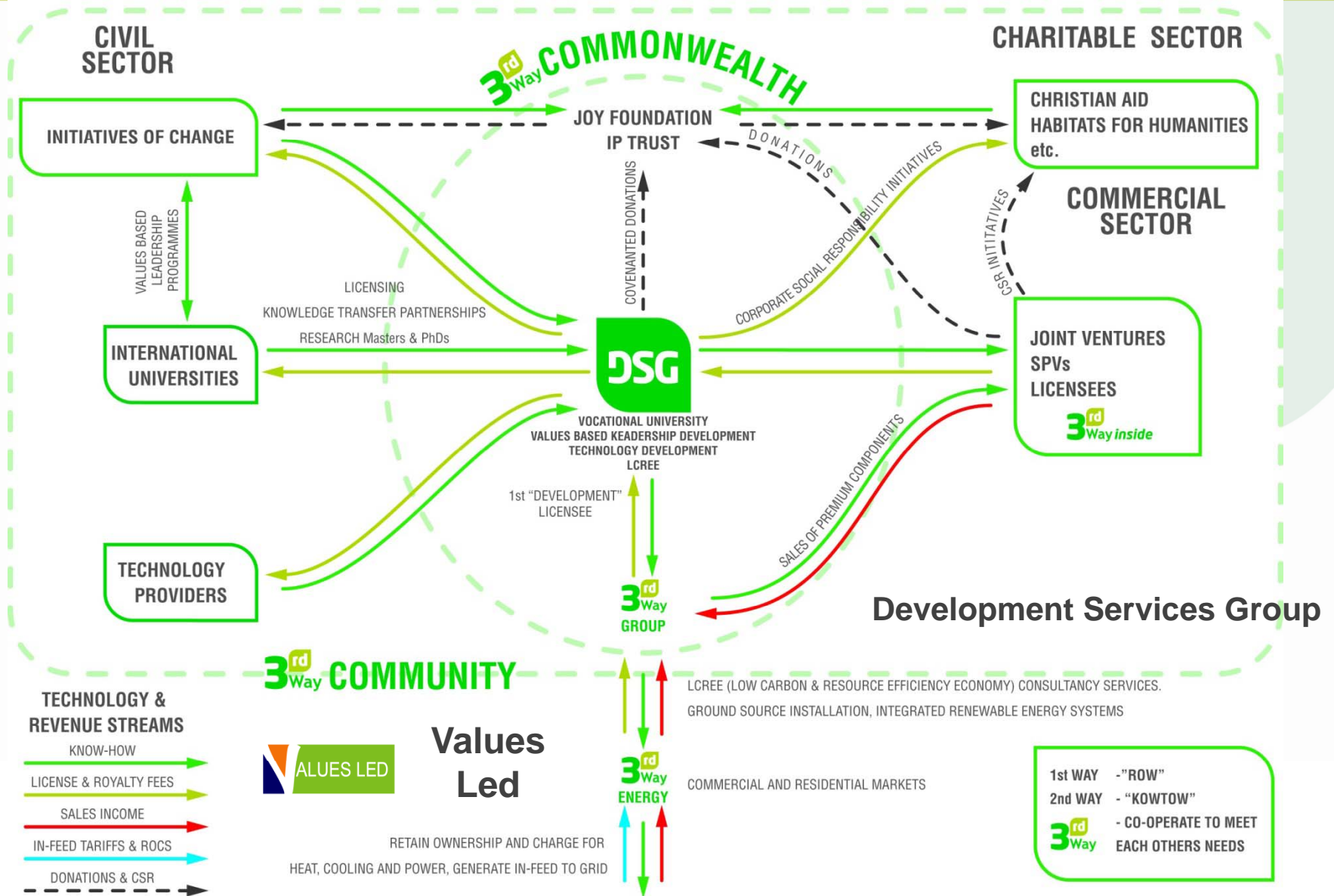
Delivering  
Innovation

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Technology for the 21<sup>st</sup> Century



# Values Led Community of Affiliates



# World Leading Technology



- 86% of world's electricity is generated by turbines
- Future is distributed generation at point of use using Combined Heat & Power (CHP) systems
- Micro-Turbines 20-30% efficient
- **3<sup>rd</sup>Way** Turbine 45-50% efficient

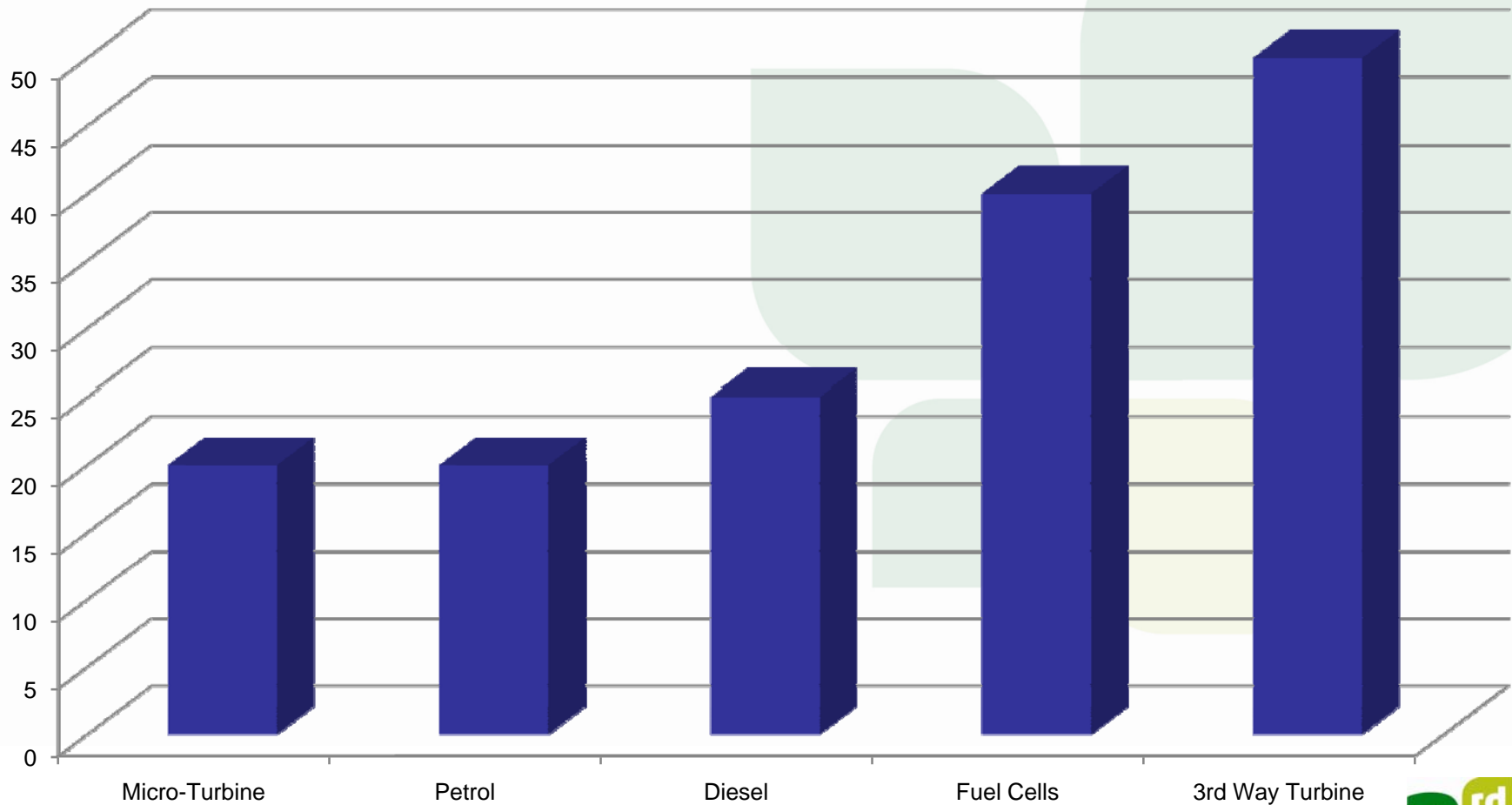
**“The **3<sup>rd</sup>Way** Turbine is one of the world leading technologies to combat climate change”**

– *Don de Silva*

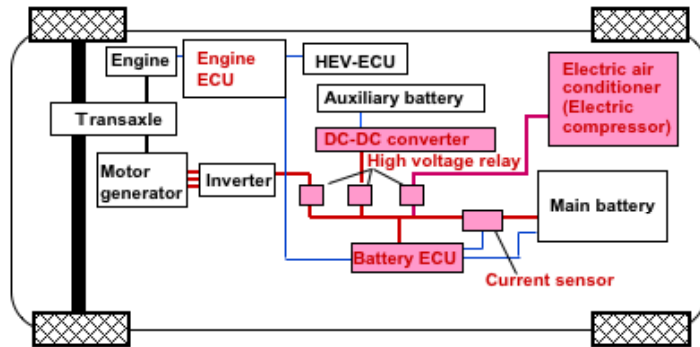
*former Senior Officer with UN Environmental Programme*

# Competing Technologies

Efficiency, %



# Tomorrow's Vehicles



Notes: Products labeled in red are DENSO products available for HEVs.

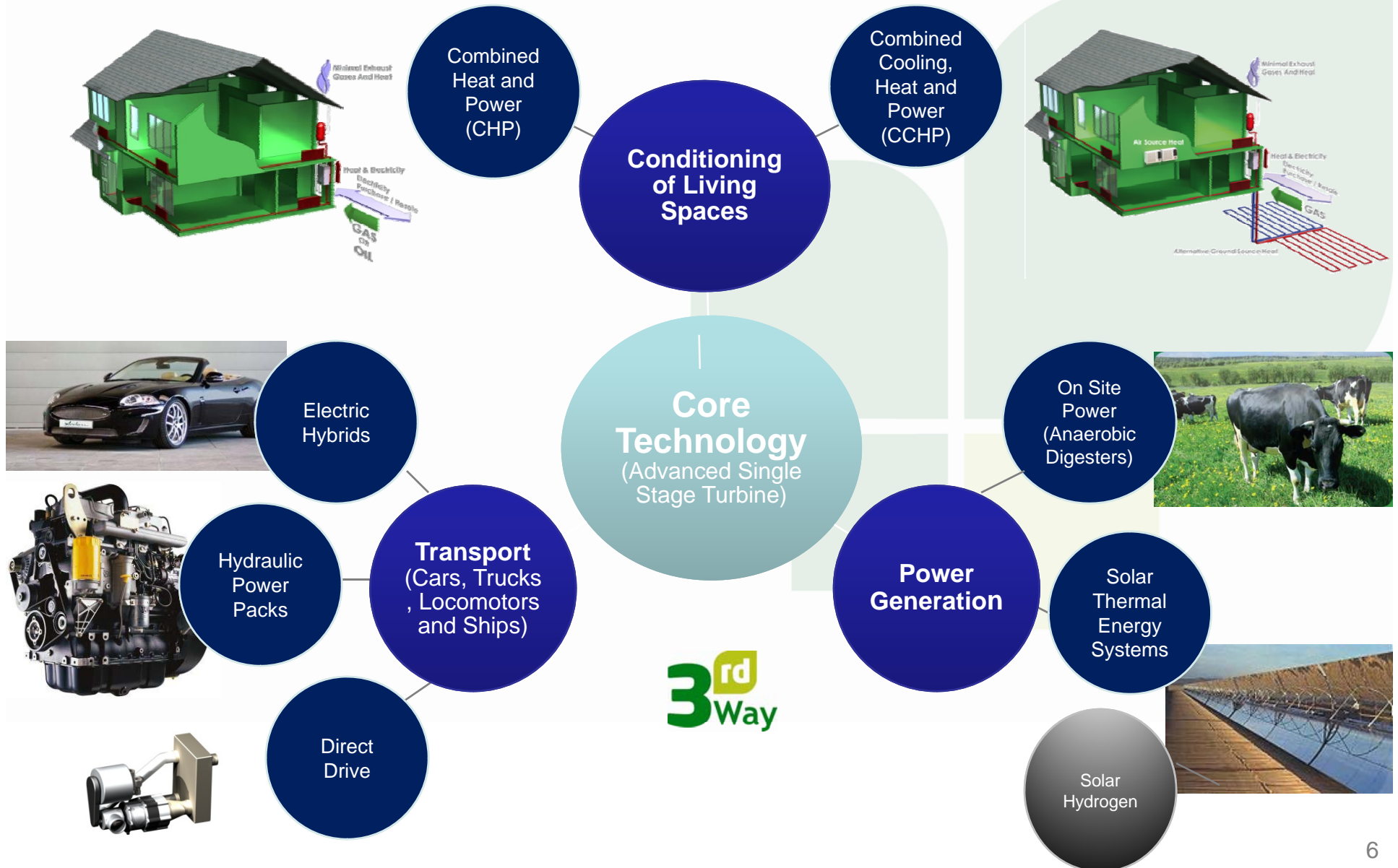
- Multi-fuel – Fossil Fuel or Hydrogen
- “Enabling Technology”
- Strategically Important & Rare
- Current Hybrids 125g CO<sub>2</sub>/km
- **3<sup>rd</sup>Way** Hybrids under 50g CO<sub>2</sub>/km (Estimate)



Hydrogen –  
safe  
storage &  
transport



# FUTURE





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Thanks



# 1<sup>st</sup> Product to Market - 3<sup>rd</sup>Way 15kWe CHP



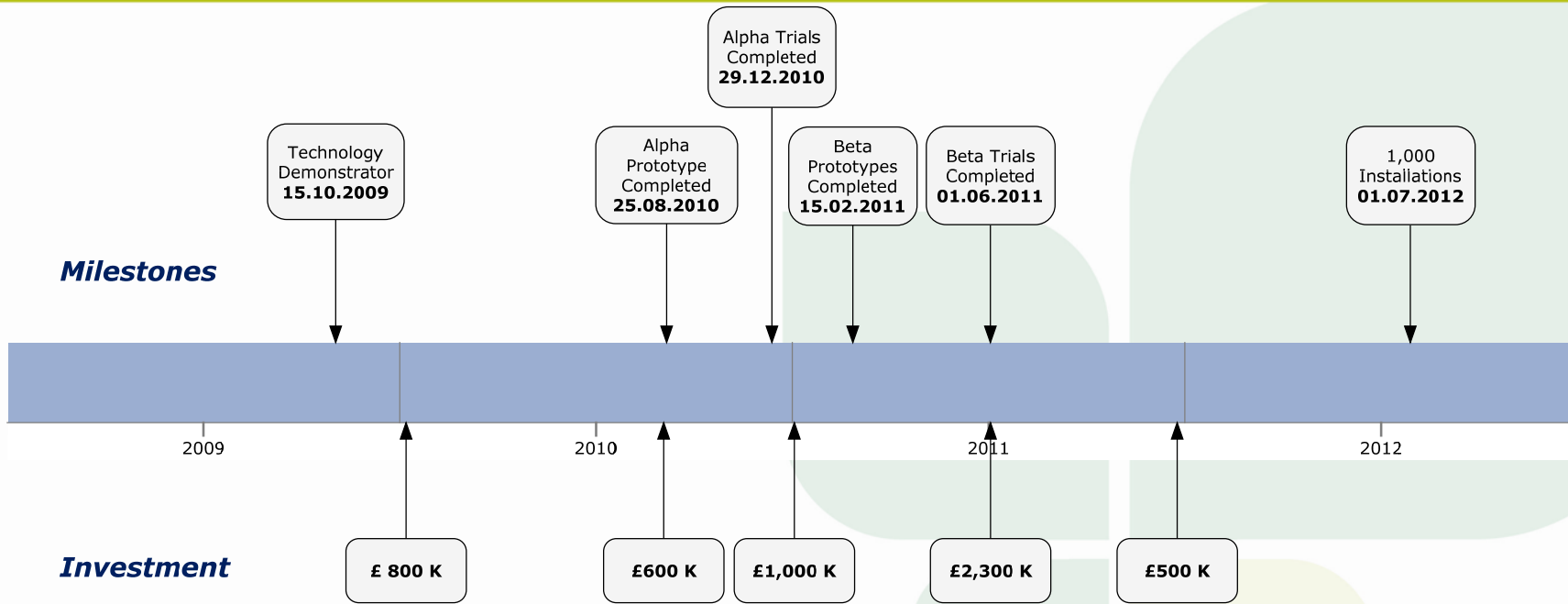
- £1.5bn pa UK Replacement Boiler Market
- Most important benefit - energy cost savings
- Rapid 2.1 year payback for commercial applications
- Residential - £4800 savings and income stream pa
- Asset financing gives low capital outlay
- Government aim to alleviate Energy Poverty by 2016  
– 6m people £6bn+ estimate



Competitive Advantage:  
**DSG is the only company to develop  
CHP with efficient power generation**



# Status and Next Steps



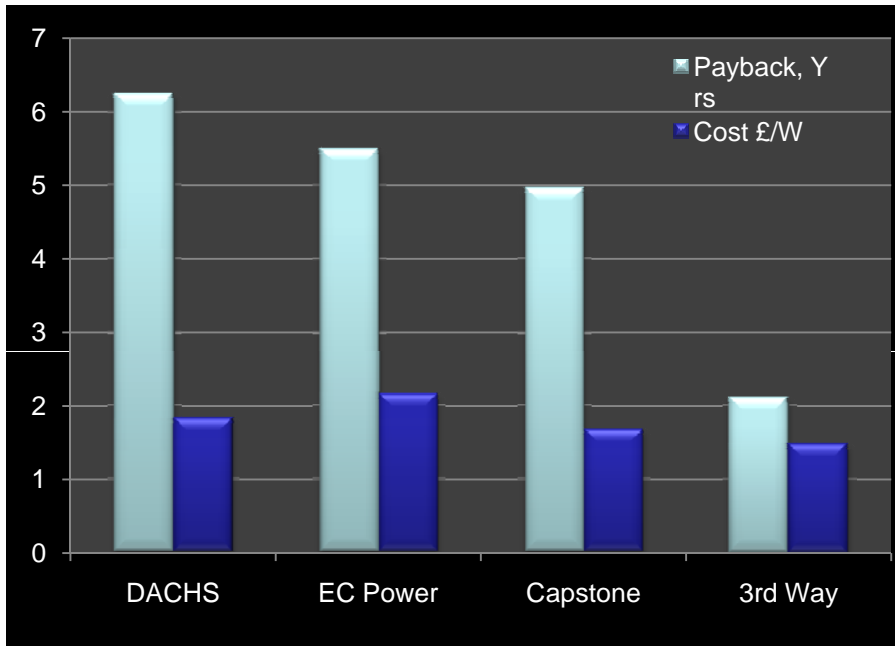
**3rd Way CHP Project**  
2009- 2012



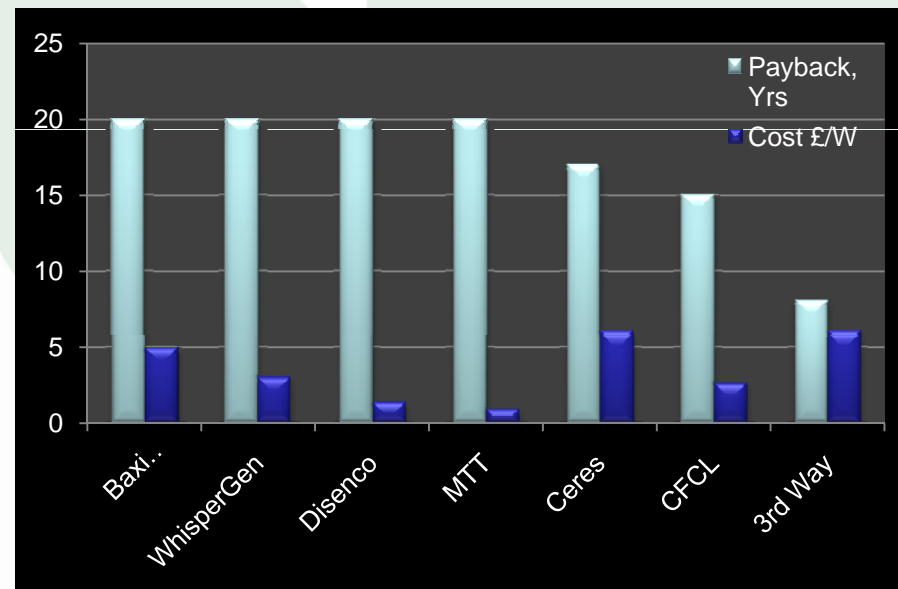
# Market Size

- 1.5m new and replacement boilers installed pa £1.5bn
- 540,000 CHP installations pa by 2015,  
938,000 pa by 2020  
(SBGI – Gas industry trade association)
- 1.5m oil fires heating systems of which I estimate 50%  
could be changed to CHP systems
- 6m energy poor

# Competitor Analysis



Commercial Systems



Domestic Systems – Gas Powered

# Revenue Streams

DSG

Development  
Services Group

Affordable  
Clean  
Energy

## Sales CHP units

- Upfront payment for installation
- User benefits from savings and income

## Lease CHP units

- Monthly payments from customer.
- User benefits from savings and income

## DSG Energy Poverty Programme

- DSG receives income from power and ROCs
- Discounted sales to user for electricity and heating.

## Service and Maintenance

- Annual service and maintenance fees.

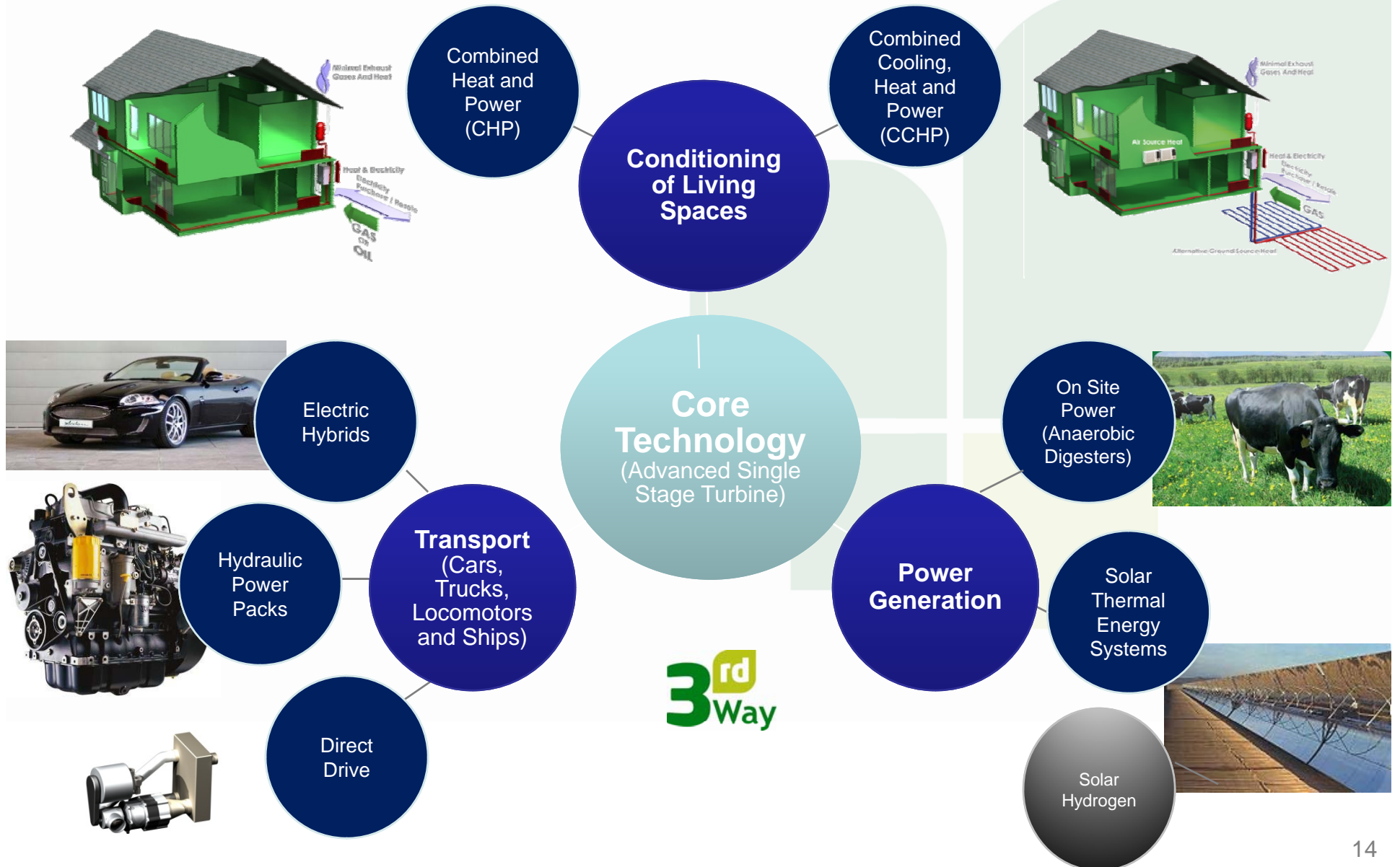
# Financial Forecasts

Summary - Average Growth from Second Year of Sales = 87%

Year	Sales (£k)	Sales CHP (Units)	Net Profit, BT (£k)	Cash at the End of Year (£k)	External Financing (£k)	Annual Carbon Savings (Tons)
2010	0	0	-734	126	800	0
2011	2,020	107	-217	759	4400	3,477
2012	10,767	607	3,820	3,309	0	23,216
2013	26,371	1,490	9,899	10,464	0	71,666
2014	49,156	2,772	21,664	27,941	0	161,780
2015	65,558	3,657	30,103	53,579	0	280,662

**Gross Margins 63.5%**

# FUTURE

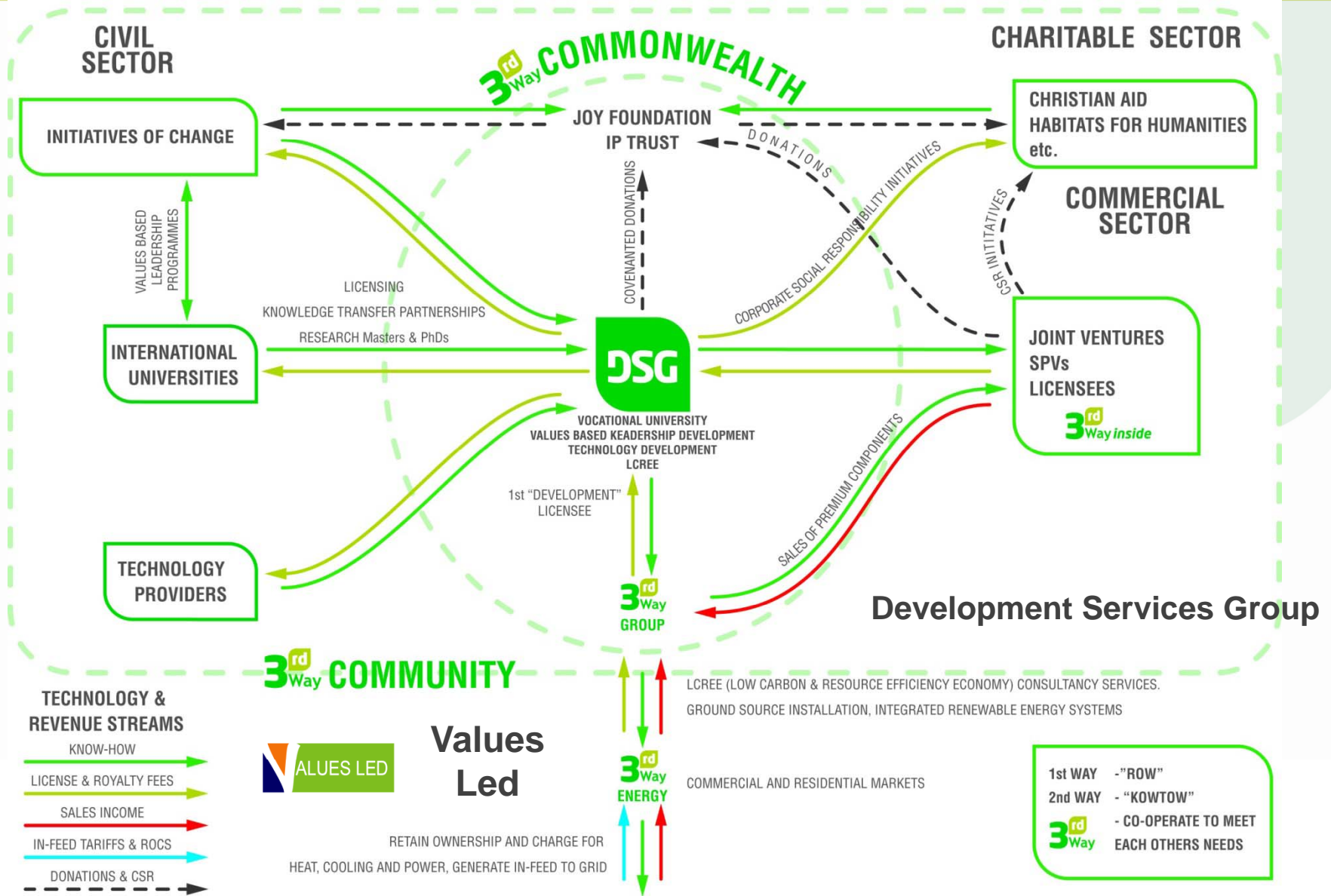


# Who We Are

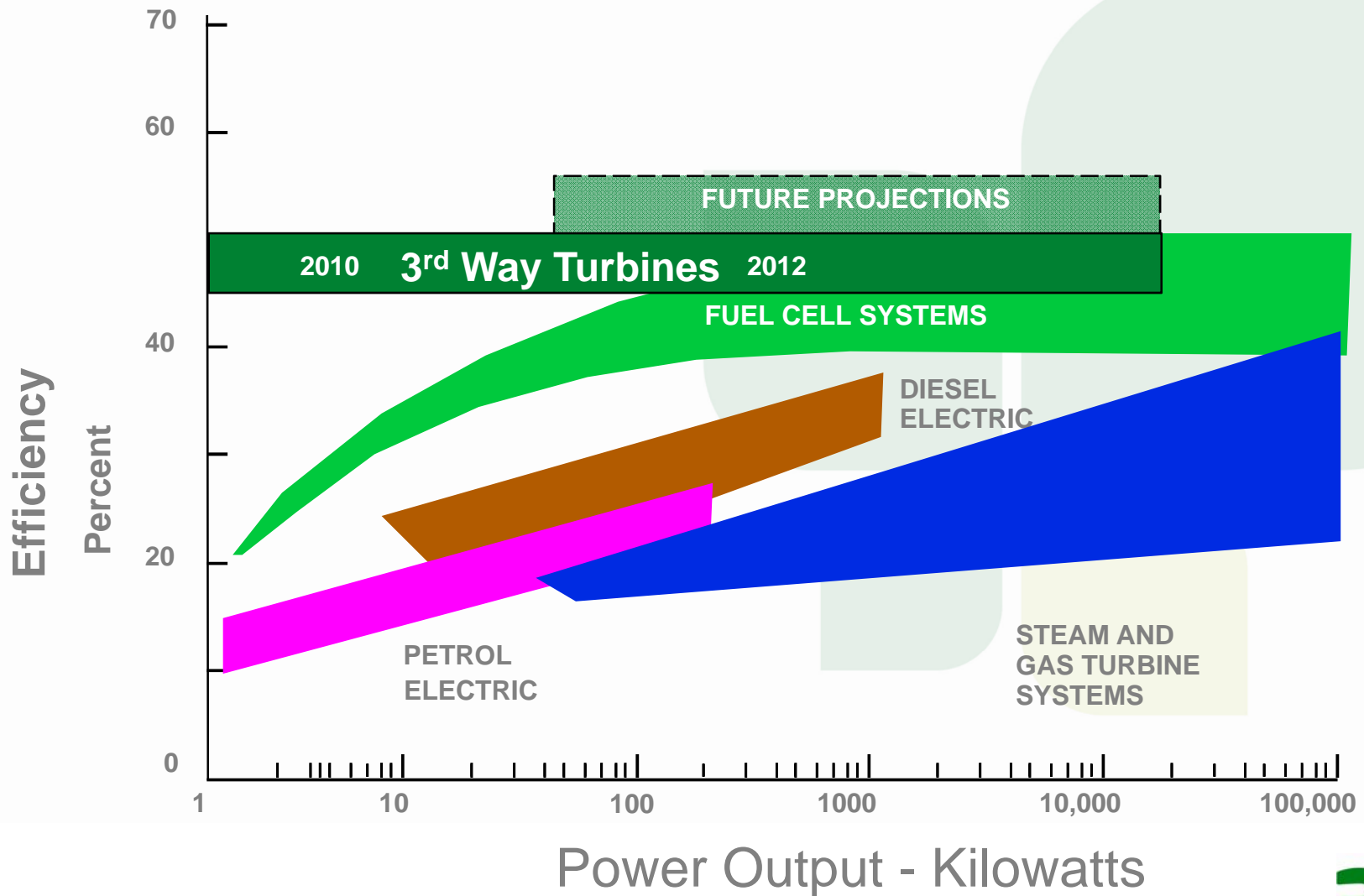


- Mike Knowles, CEO Founder and Leader of 25% year on year growth manufacturing co, developed network of leading scientists, 16 years association with an international NGO in special consultative status to UN Social and Economic Devt Council
- Dr David Fulford, Tech Dir Head of Reading University Renewable Energy, on Snr Mgt Team for electrification of villages in India and China, there are 18,000 of his digesters now working in India with 98% success (nearest competitor 60%)
- DSG Network - scientists, consultants and specialist suppliers
- Ian Sinclair-Ford, Co Sec Senior Financial Lawyer with top UK Finance Co, Asset Finance
- Anthony Brennan, CFO Former CFO Daimler Benz, merged world's top two IP attorneys
- Bryan Loynes, Sales Dir Director retail & business to business sales

# Values Led Community of Affiliates



# World Leading Technology



# FRIENDSHIP Programme

DSG

Development  
Services Group

Affordable  
Clean  
Energy

**F** orward thinking in  
**R** enewable energy and  
**I** ntegrated  
**E** nvironmental systems together with  
**N** ew  
**D** evelopments for  
**S** elf  
**H** elp  
**I** n  
**P** roviding for family and community

# FRIENDSHIP

- 3<sup>rd</sup> Way turbine can operate on neat bio-oil with no need for fossil oil blending
- Electricity generated from bio-oil qualifies for in-feed tariff and ROCs (Renewable Obligation Certificates) which pays for installation of Combined Heat and Power system
- System provides UK Energy Poor with low cost heat and power
- Also provide other benefits:
  - Intelligent Vest with 24/7 monitoring to provide continuous ECG, respiratory monitoring and monitoring of falls
  - Virtual social network – audio-visual communications with family, friends, care workers and interest groups
  - Access to multi-media and media library

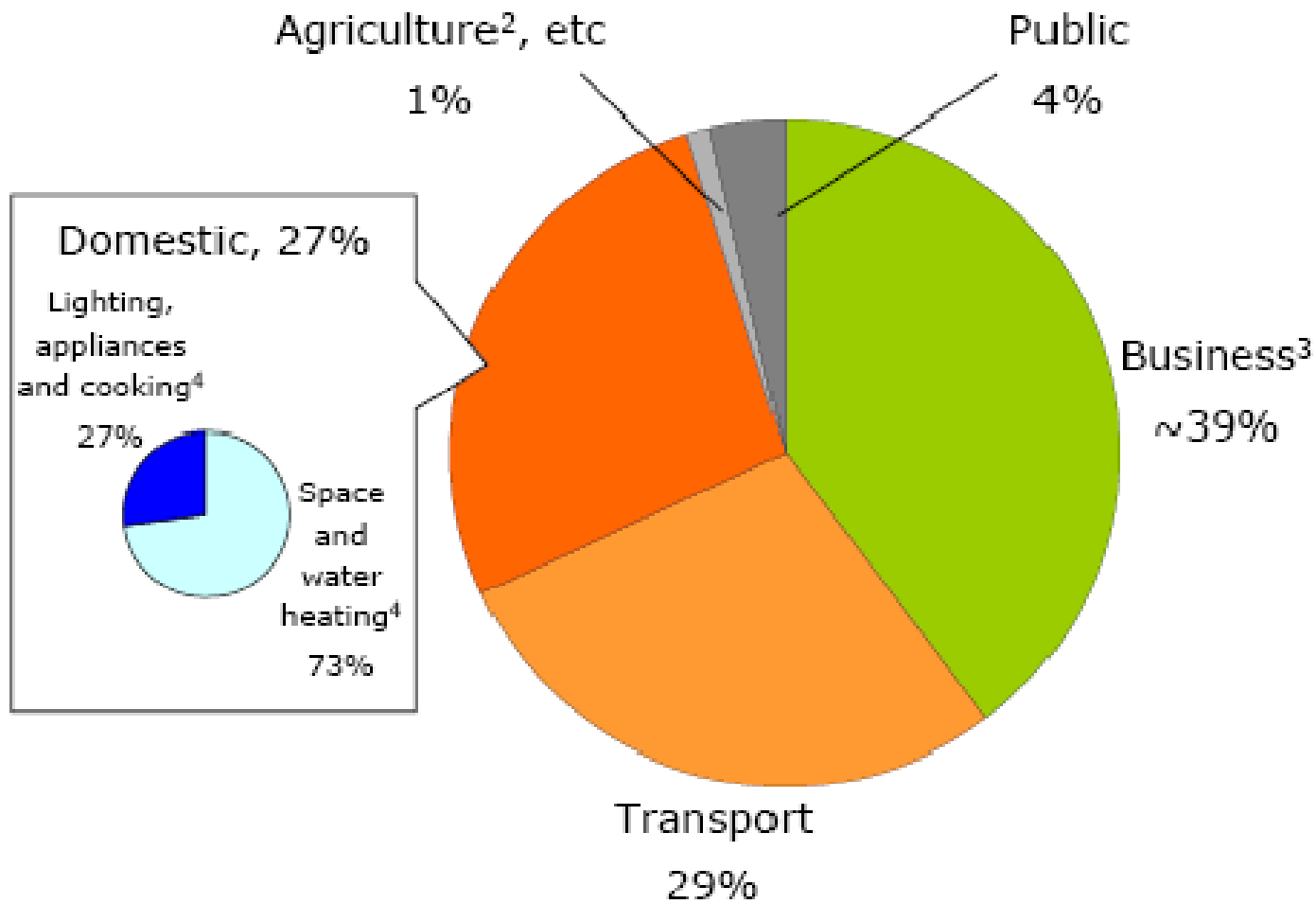


Jatropha bio-fuel  
from semi-arid land

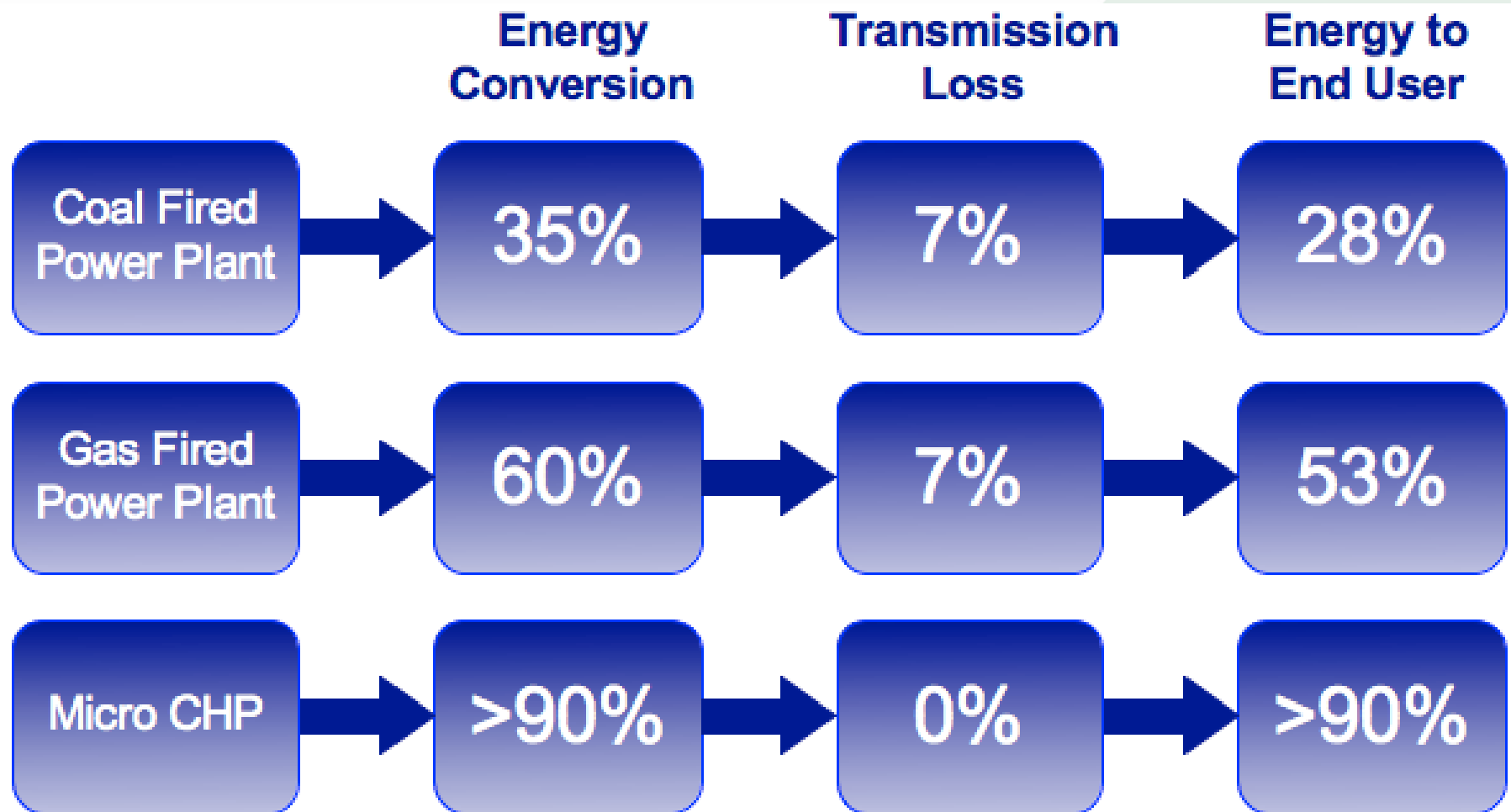


# The Case for Combined Heat & Power

**UK carbon emissions<sup>1</sup>**



# The Case for Combined Heat & Power



# Initiatives of Change

## *TIGE 2010* Pre-Conference Announcement



Caux Initiatives for Business

**Trust - Integrity - Leadership**

### *Trust and Integrity in the Global Economy*

*Beyond consumer capitalism towards  
sustainability and fair trade*

*Thu 12 - Tue 17 Aug, 2010*

*A Conference for Young Professionals, Business Leaders, Media  
professionals, those engaged in Food Sustainability and Fair  
Trade, Social Entrepreneurs, NGOs and Business School  
Students/Graduates*

*International Conference Centre for  
Initiatives of Change, Caux, Switzerland*

*For more information*

*Email [cib@caux.ch](mailto:cib@caux.ch) [www.cauxbusiness.org](http://www.cauxbusiness.org)*

*The 2010 conference on Trust & Integrity in the  
Global Economy (TIGE) will explore ways to help  
create a just and equitable global economy. We  
have only a short time in which to make the  
extraordinary changes needed - to bridge the  
gap between the world's rich and poor, edu-  
cated and illiterate and face up to our environ-  
mental reality and ecological challenges. The  
conference will focus on the moral and philo-  
sophical base needed to underpin this change.  
It will also investigate where initiatives for an  
equitable economy is gathering momentum  
around the world and seek to support those,  
young and old alike, who are working to create  
the shifts needed. Join a wide cross section of  
people who will gather at Caux to seek inspira-  
tion and breakthrough living and thinking in  
this exciting and urgent task.*

# Automotive Sector - Future Prosperity & Purpose?

## Problems

- Global energy issues and climate change can only be addressed by using engineering skills and capacity
- The Global Automotive Sector is currently operating at around 50% capacity

## Solutions

- Can we develop a vision and objectives to return to close to 100% operation by addressing the needs of our global village as sustainable business opportunities ?
- The new energy industry in the UK will be bigger than the Aerospace industry £340bn by 2015 – renewable energy is the fastest growth and largest market in the world's history – measured in \$trillions. There is not enough capacity to meet demand.

# Fundamental Issues – UN Millennium Goals +



- **Development** - 80% of population trying to survive on 20% of wealth whilst the 20% with 80% of the wealth have been producing more than they can consume since the 1990s and are now in chronic recession. The envy of the poor for the rich is the underlying cause of social unrest, extremism and terrorism – UN Policy Research
- **Provision of Clean Water** is this century's biggest problem. Dirty water is the world's biggest killer. 20,000 people die each day from dirty water in India alone – one every 4.3 seconds People are expected to go to war over water this century. (Brundtland Report)
- **Poverty** – Low energy consumers will become average consumers. 60% of the world's population use cooking fires to provide over 90% of their energy. The smoke from cooking fires is the world's second biggest killer (Brundtland Report)
- **Global Warming** -developing regions will discharge more CO2 than the developed world as they develop unless we can introduce them to renewable electricity at lower cost than fossil fuelled electricity (UN Objective)
- **World Bank Group** – “A world without poverty”